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OCT 18 1995
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

October 18, 1995

VIA HAND DELIVERY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

Re: ~~RM-8648~~ ✓
RM-8653

Dear Mr. Caton:

Attached are an original and seven (7) copies of a Statement of Ex Parte Discussion held in the Commission's Office of Engineering and Technology. The Statement is being filed for convenience and on behalf of the Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry.

If there are any questions, please communicate with the undersigned.

Respectfully submitted,

FLETCHER, HEALD & HILDRETH, P.L.C.

Leonard Robert Raish
Leonard Robert Raish

LRR:cej

Enclosures

cc: Michael J. Marcus (w/enc.)(VIA HAND DELIVERY)
Charles J. Iseman (w/enc.)(VIA HAND DELIVERY)
Lynn L. Remly (w/enc.)(VIA HAND DELIVERY)
Fred Thomas (w/enc.)(VIA HAND DELIVERY)
Tom Derrenge (w/enc.)(VIA HAND DELIVERY)

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BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

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OCT 18 1995

**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY**

In the Matter of)
)
)
 Petitions for Rulemaking to Allocate) RM-8648
 the 5 GHz Band and Adopt Service)
 Rules for a Shared Unlicensed Personal) RM-8653
 Radio Network)

To: The Commission

**STATEMENT OF EX PARTE
DISCUSSION**

On September 13, 1995, a meeting was held in the FCC's Office of Engineering and Technology (OET) to discuss the above-captioned to establish unlicensed wireless telecommunications in the 5 GHz band. The meeting was requested by the Fixed Point-to-Point Communications Section of the Telecommunications Industry Association ("TIA"). Present at this meeting were:

OET

Michael J. Marcus - Associate Chief for Technology
Charles J. Iseman - Chief Spectrum Policy Branch
Lynn L. Remly - Chief Spectrum Utilization and Economics Branch
Fred Thomas - Staff Spectrum Policy Branch
Tom Derrenge - Staff Spectrum Policy Branch

TIA

George M. Kizer - Alcatel Network Systems, Inc.
Robert J. Miller - Gardere & Wynne, L.L.P.
Leonard R. Raish - Fletcher, Heald & Hildreth, P.L.C.

In the above-captioned proposals, Apple Computer, Inc. ("Apple") and Wireless Information Networks Forum ("WINForum") propose reallocation of the 5 GHz band to accommodate unlicensed high-speed wireless digital services ("HSWDS").¹ The TIA representatives requested the meeting with OET to clarify certain issues concerning unlicensed "community wide" HSWDS networks with 10-12 mile paths.

TIA appreciates the above listed OET representatives taking time to participate in this discussion. The TIA representatives made it abundantly clear that it has no objection to the implementation of the concept for unlicensed HSWDS. However, the purpose of the meeting was to identify and elaborate on the technical issues inherent in proposals to conduct unlicensed HSWDS telecommunications at 5 GHz that would involve point-to-point paths up to 10 to 12 miles in length. TIA's concern with the proposals in RM-8648 and RM-8653 fall into the following two categories:

- (a) Very little in the way of documentation or technical analysis has been presented to the Commission on how the unlicensed HSWDS operations would be compatible with each other and with licensed users sharing the 5 GHz band.
- (b) A basic Commission policy, that short haul fixed point-to-point microwave service ("FS") "hops" should be in bands at 18 GHz and above, thereby reserving spectrum below 11 GHz for "long haul hops," would be compromised. "Hops" of up to 10 or 12 miles, as is being considered for the newly proposed unlicensed HSWDS operations, would be an inefficient use of valuable spectrum.

¹TIA, and at least three of its member companies, Alcatel Network Systems, Inc., Harris Corporation-Farion Division, and Digital Microwave Corporation, have filed Comments and Reply Comments and RM-8648 and RM-8653.

The meeting included a detailed technical presentation by George Kizer, Chairman of the TIA Fixed Point-to-Point Communications Committee. Mr. Kizer used the attached charts in making his presentation. The following summarizes the presentation:

- (a) Unlicensed HSWDS operations, as conceived in RM-8648 and RM-8653, are envisioned as being useful for very short range communications. The inclusion of paths of up to 10 or 12 miles is a "non-sequitur" to the short range local concept that makes unlicensed operations feasible. The power requirements for the 10-12 mile paths would preclude the local wireless operations from functioning due to harmful interference. (See pages 2 et seq of attached).
- (b) Technology already exists for FS paths which are up to 10 to 12 miles long. U.S. manufacturers already are producing equipment for use in 18 GHz, 23 GHz, and 38 GHz bands pursuant to Commission policy on using such higher bands for short "hops." Due to the specific nature of applications and technology used at these frequencies, costs and required installation time are kept at very low levels compare with more traditional microwave systems. In fact, the cost of supplying a millimetric radio link is comparable to the cost of the corresponding unlicensed equipment alternative. No justification has been made by Apple or WINForum to duplicate these efforts with new equipment at 5 GHz, or to retreat from Commission policy aimed at efficient use of valuable spectrum.
- (c) Antennae designs are an important factor in spectrum allocation decisions. In order to establish FS links up to 12 miles in length at 5 GHz, a large "physical plant" would be required to achieve the distance and to keep the beam sufficiently narrow to avoid all other unlicensed operations. At a minimum, a six (6) foot dish would be required at 5 GHz -- certainly unwieldly and "overkill" for an unlicensed wireless operation. Comparatively, only a two (2) foot or smaller dish or less would be required at the higher bands. The two (2) foot dishes already are commonly available.
- (d) TIA's primary problem with the proposal is the use of a single unlicensed frequency band for both short and long distance operation. A five to ten mile nondiversity path, with marginal path clearance, will require significantly more transmit power than will a transmitter intended for short distance use. The use of relatively

high power for long distance paths significantly increases the risk of the long distance transmitters interfering with simple, low cost, short distance receivers.

OET staff suggested that spread spectrum technology would not be appropriate for unlicensed wireless operations. TIA concurs.

Mr. Marcus asked what TIA thought about identifying spectrum (e.g., the 10 GHz, 18 GHz, and 23 GHz bands) that would be allocated for a "quick license" procedure. He has heard criticism from the public, including Apple, that current Part 94 Rules are too "complicated" for quick reaction times required in the use of new technologies. The TIA representatives advised that the idea for a "quick license" procedure certainly had merit, but it should be implemented in a band with virgin spectrum, e.g., at 27.5-29.5 GHz. Too many complications would be involved in clearing two bands (one send and one receive) for the "quick license" approach.

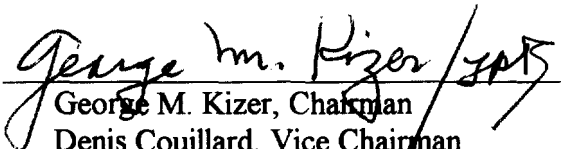
Moreover, TIA would like to highlight that current wide area licensing policy for the 38 GHz band , as well as the policy it proposed for 37 GHz band, could achieve the same quick reaction times that Apple apparently desires. When supplying a broadband millimetric link to

their customers, wireless carriers active in the 38 GHz band do not require any license other than the one(s) they already possess for a given business area.

Respectfully submitted

FIXED POINT-TO-POINT COMMUNICATIONS
SECTION, NETWORK EQUIPMENT DIVISION
OF THE TELECOMMUNICATIONS INDUSTRY
ASSOCIATION

ATTACHMENT - 1

By: 
George M. Kizer, Chairman
Denis Couillard, Vice Chairman
Eric Schimmel, Vice President of TIA

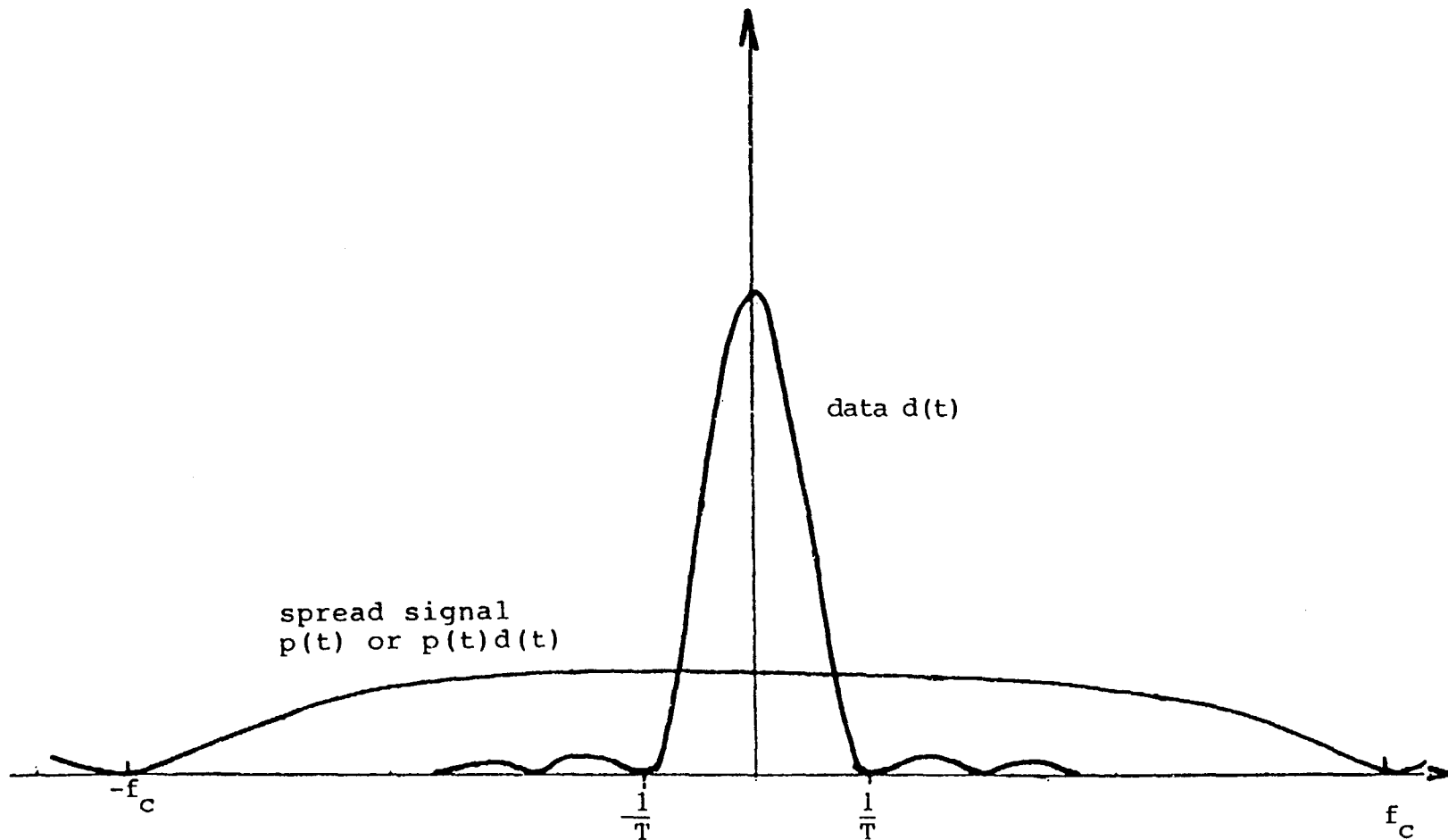
Telecommunications Industry Association
2500 Wilson Boulevard, Suite 300
Arlington, Virginia 22201
Attn: Mr. Eric Schimmel

Of Counsel

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Dated: October 18, 1995
cej/lrr/r#4/ex parte

Unlicensed Radio Systems



Power spectrum of data and of spread signal.

- Concerns regarding the WINForum Proposal
 - Use of Common Frequency Band for Local and Long Distance Transmission is Undesirable
 - High Frequencies are Best for Simple Point-to-Point Applications
 - Cost Effective Technology Already Exists

- Use of Common Frequency Band for Local and Long Distance Transmission is Undesirable
 - When Compared to Local Operation (0.2 miles), Long Point-to-Point Operation (10 miles) Will Require Significantly More Power
 - ◇ Path has more loss (34 dB)
 - ◇ Path needs more fade margin (20 dB)
 - ◇ Receive antenna gain helps (-24 dB)
 - ◇ Net differential (30 dB)
 - One Point-to-Point User Would Look Like Many Local Users ($30 = 10 \log (1000)$)
 - Point-to-Point Will Foreclose Local Use of Band

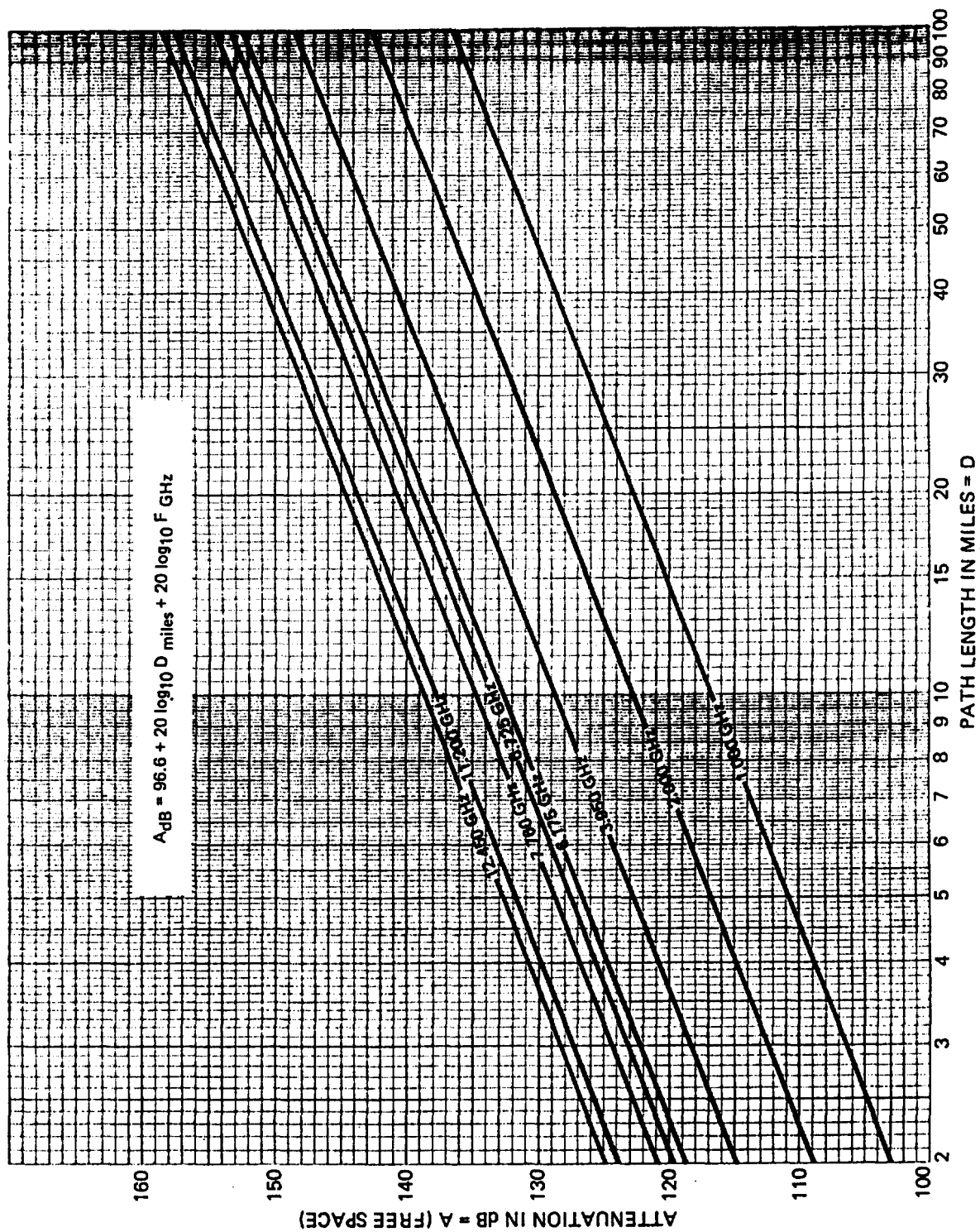


Figure 13. Free Space Attenuation Between Isotropic Antennas

White, R. F., Engineering Considerations for Microwave Communications Systems, San Carlos: Lenkurt Electric, 1970, pg. 36.

- High Frequency Bands are Best for Simple Point-to-Point Applications
 - High Frequency Bands Simplify Frequency Reuse
 - High Frequency Bands Have the Necessary Long Distance Transmission Capability

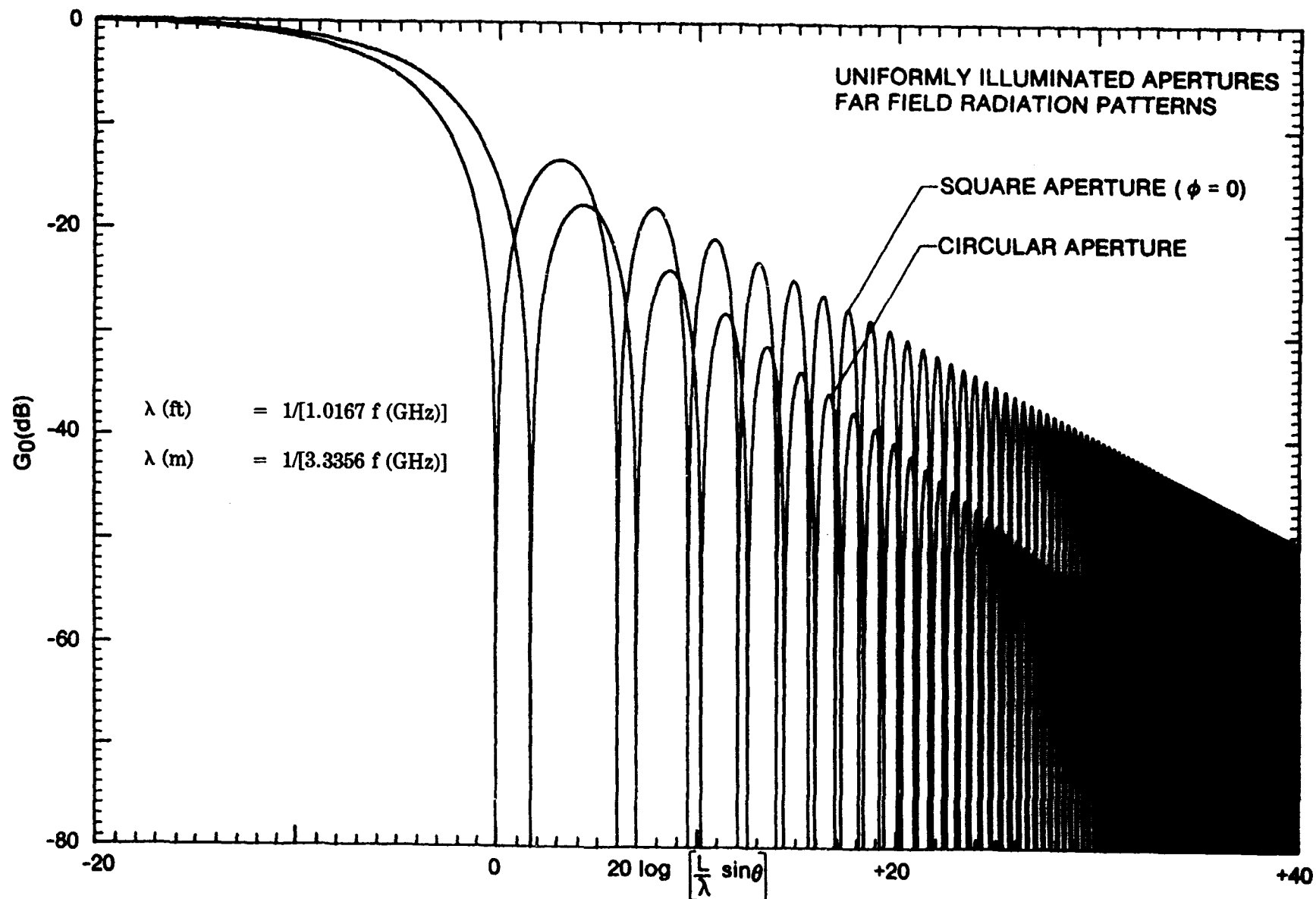


FIG. 9-2 Circular or square reflector radiation pattern.

Chart2

Maximum Path Distance for 99.99% Availability

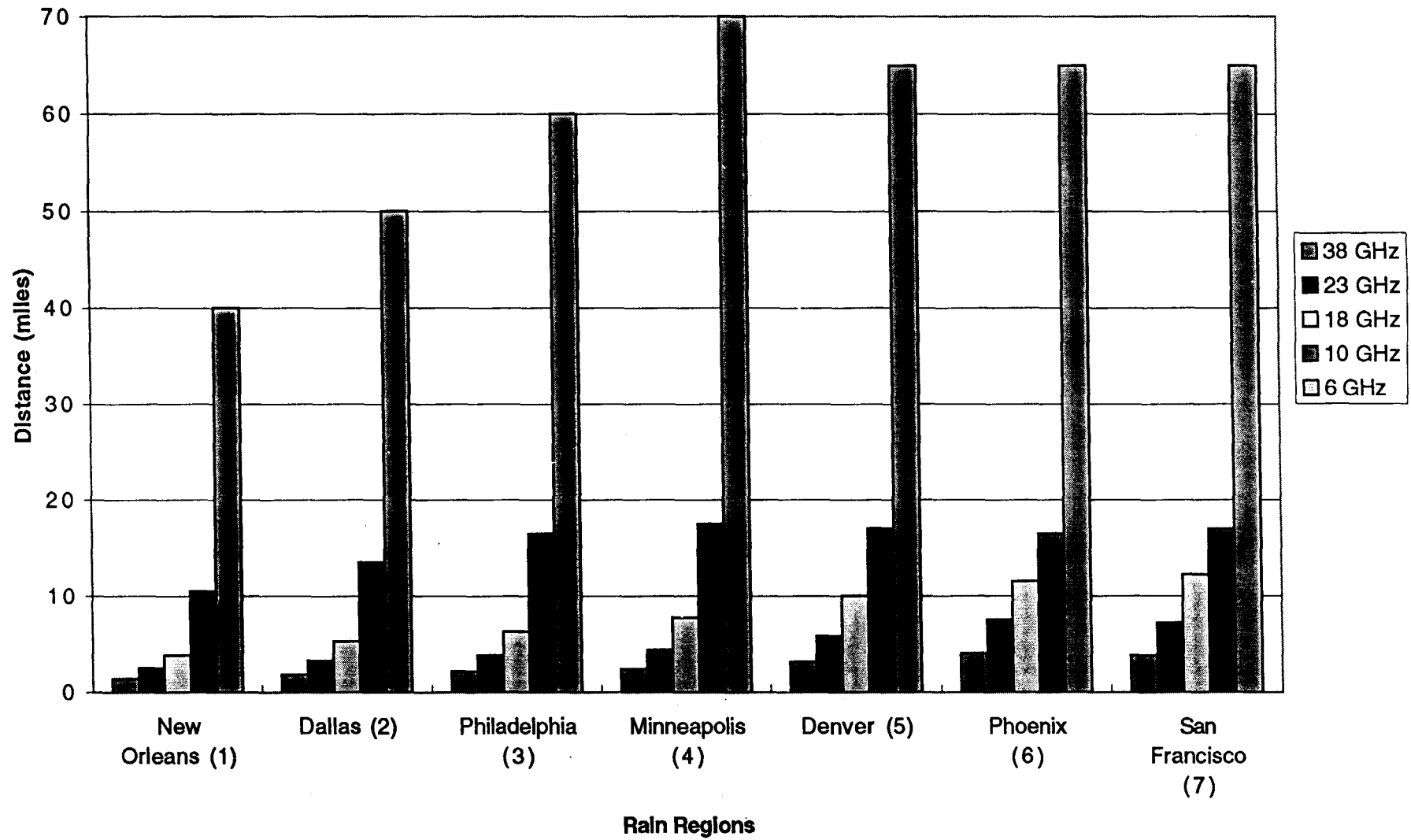
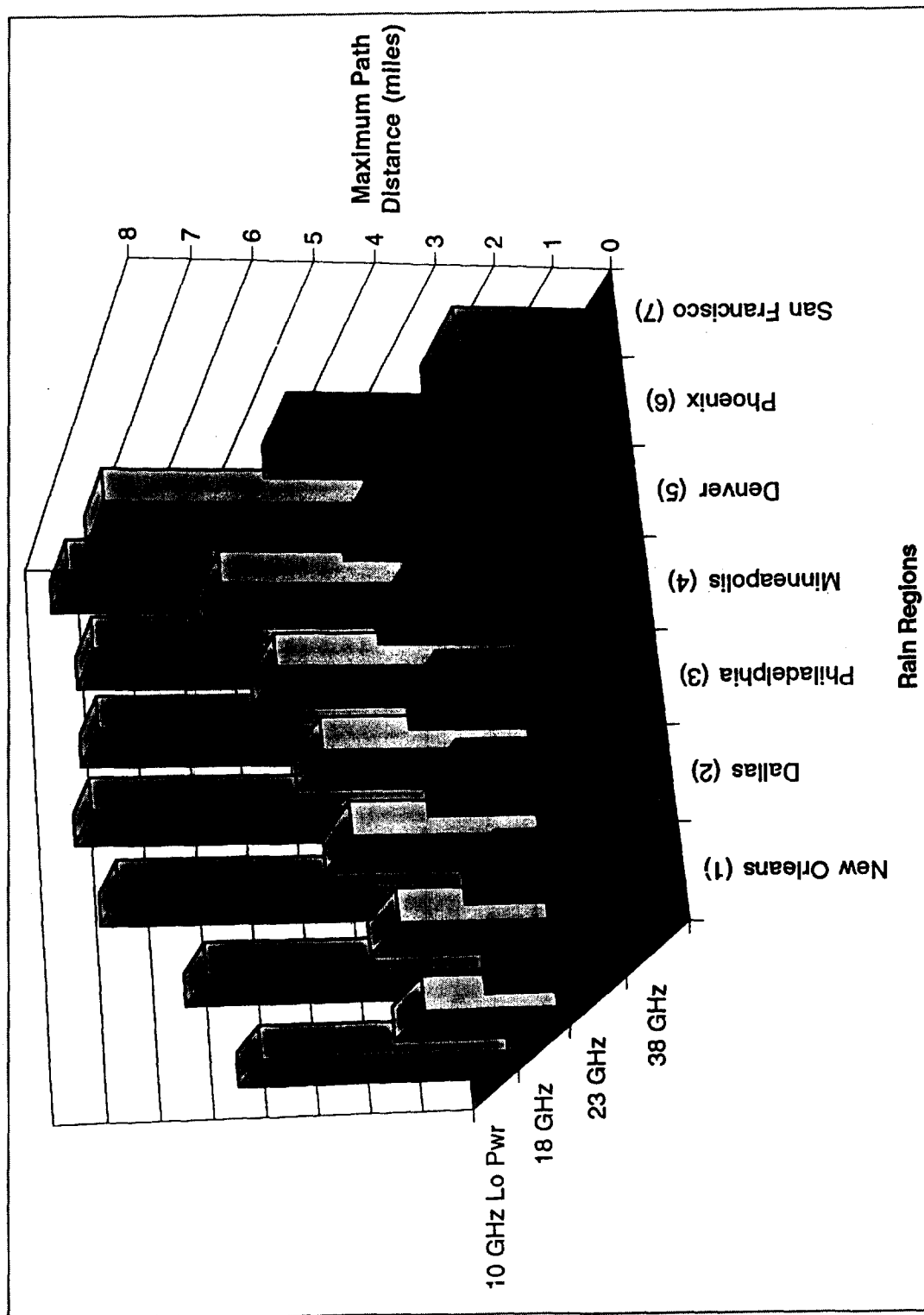


Chart2

MICROWAVE

How far can you go?



- Cost Effective Technology Already Exists
 - Current Nonstandby Point-to-Point Products
Cost \$7,000 - \$10,000 Per Terminal Including
Small Antennas
 - Similar Price to Comparable Unlicensed Radios

Cost Effective Technology Already Exists

High Frequency Bands Simplify Frequency Reuse